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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/493,677	01/28/2000	Kaoru Sato	43890-401	2531

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EXAMINER

LEO, LEONARD R

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/493,677	Applicant(s) SATO ET AL.	
	Examiner Leonard R. Leo	Art Unit 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,4-9,15,17,19-21,23 and 25-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-9,15,17,19-21,23 and 25-33 is/are rejected.
- 7) ☒ Claim(s) 34 and 35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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### **DETAILED ACTION**

The amendment filed November 12, 2004 has been entered. The finality of the previous Office action mailed on August 12, 2004 is withdrawn. The merit of claim 26 was not addressed. Claims 1, 4-9, 15, 17, 19-21, 23 and 25-35 are pending.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 29 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Yu (Figures 1-3).

Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Coe (3,220,471). In Figure 2, the surface at reference numeral 13 is read as the “heat receiving face.”

In the rejections above, the blower is read as having a side that is “disposed so as to face perpendicular to said heat receiving face.”

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-6, 9, 15, 17, 19-21, 25-28 and 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu in view of Hinshaw.

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Yu discloses all the claimed limitations except an uninterrupted fluid path in the direction of the column.

Hinshaw discloses a heat sink 10 comprising a plurality of first and second slits forming a plurality of pillar-type protrusions for the purpose of increasing the surface area to improve heat exchange and permitting omni-directional convective cooling (column 2, lines 51-56).

Since Yu and Hinshaw are both from the same field of endeavor and/or analogous art, the purpose disclosed by Hinshaw would have been recognized in the pertinent art of Yu.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Yu second slits forming a plurality of pillar-type protrusions for the purpose of increasing the surface area to improve heat exchange and permitting omni-directional convective cooling as recognized by Hinshaw.

Regarding claims 15 and 33, the air blowing means 4 of Yu is mounted transverse to the heat receiving face.

Regarding claims 20-21 and 27, Hinshaw discloses the convective cooling may be from on top of the heat sink. Regarding claim 27, in addition, the functional recitation "for blowing fluid in said direction in which the cross-sectional width of said column changes" has not been given patentable weight because it is narrative in form. In order to be given patentable weight, a functional recitation must be expressed as a "means" for performing the specified function, as set forth in 35 USC § 112, 6th paragraph, and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. *In re Fuller*, 1929 C.D. 172; 388 O.G. 279.

Regarding claims 15 and 26, as disclosed in Figures 1-3 of Yu, the fins in at least one row extend at a common angle and extend at the same vertical height.

Claims 1, 5-7, 9, 15, 17, 19, 26-28 and 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coe (3,220,471) or North et al in view of Hinshaw.

Coe ('471) or North et al discloses all the claimed limitations except an uninterrupted fluid path in the direction of column.

Hinshaw discloses a heat sink 10 comprising a plurality of first and second slits forming a plurality of pillar-type protrusions for the purpose of increasing the surface area to improve heat exchange and permitting omni-directional convective cooling (column 2, lines 51-56).

Since Coe ('471) or North et al and Hinshaw are both from the same field of endeavor and/or analogous art, the purpose disclosed by Hinshaw would have been recognized in the pertinent art of Coe ('471) or North et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Coe ('471) or North et al second slits forming a plurality of pillar-type protrusions for the purpose of increasing the surface area to improve heat exchange and permitting omni-directional convective cooling as recognized by Hinshaw.

Regarding claim 7, element 17 of Coe is read as part of the "column."

Regarding claim 27, the functional recitation "for blowing fluid in said direction in which the cross-sectional width of said column changes" has not been given patentable weight because it is narrative in form. In order to be given patentable weight, a functional recitation must be expressed as a "means" for performing the specified function, as set forth in 35 USC § 112, 6th

paragraph, and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. *In re Fuller*, 1929 C.D. 172; 388 O.G. 279.

Claims 1, 4-9, 26, 28 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over North et al in view of Hinshaw.

North et al discloses all the claimed limitations except an uninterrupted fluid path in the direction of column.

Hinshaw discloses a heat sink 10 comprising a plurality of first and second slits forming a plurality of pillar-type protrusions for the purpose of increasing the surface area to improve heat exchange and permitting omni-directional convective cooling (column 2, lines 51-56).

Since North et al and Hinshaw are both from the same field of endeavor and/or analogous art, the purpose disclosed by Hinshaw would have been recognized in the pertinent art of North et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in North et al second slits forming a plurality of pillar-type protrusions for the purpose of increasing the surface area to improve heat exchange and permitting omni-directional convective cooling as recognized by Hinshaw.

Regarding claims 4 and 8, North et al discloses protrusions and/or recesses in Figure 1B.

Claims 4, 8 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu in view of Hinshaw as applied to claims 1, 5-6, 9, 15, 17, 19-21, 25-28 and 30-33 above or Coe (3,220,471) in view of Hinshaw as applied to claims 1, 5-7, 9, 15, 17, 19, 26-28 and 30-33 above, and further in view of North et al.

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The combined teachings of Yu and Hinshaw, or Coe (3,220,471) and Hinshaw discloses all the claimed limitations except protrusions and/or recesses on the pillar-type protrusions.

North et al discloses a cooling apparatus comprising a blower 46 (Figure 5) and a heat sink 10 having a plurality of fins 12 with protrusions and/or recesses (Figure 1B) for the purpose of enhancing the heat transfer capability (column 2, lines 51-53).

Since Yu or Coe (3,220,471) and North et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by North et al would have been recognized in the pertinent art of Yu or Coe (3,220,471).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Yu or Coe (3,220,471) pillar-type protrusions with protrusions and/or recesses for the purpose of enhancing the heat transfer capability as recognized by North et al.

#### ***Allowable Subject Matter***

Claims 34-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

The rejection of claims 34-35 under 35 U.S.C. 112, second paragraph, is withdrawn.

The rejections in view of Lin are withdrawn and replace with North et al. Although, both reference disclose protrusions and/or recesses on the fin surfaces, North et al explicitly discloses the teaching.

The Examiner acknowledges that copending applications may not qualify as prior art under some paragraphs of 35 USC 102 or 103. However, commonly assigned or commonly invented applications and/or patents qualify under 35 USC 101. The Examiner has demonstrated the latter with respect to the double patenting rejection in view of US Patent No. 6,533,028.

Applicants' arguments have been fully considered but they are not persuasive.

The anticipatory rejection in view of North et al is withdrawn. As noted above, the blower is read as having a side that is "disposed so as to face perpendicular to said heat receiving face."

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this instance, Hinshaw clearly teaches a plurality of first and second slits forming a plurality of pillar-type protrusions for the purpose of increasing the surface area to improve heat exchange and permitting omnidirectional convective cooling (column 2, lines 51-56). Figure 2 of Hinshaw discloses a heat sink similar to the primary references of Yu, Coe and North et al. The modification in Figure 3 of Hinshaw explicitly discloses cross cutting the fins to form a plurality of pillar-type protrusions



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for the purpose of increasing the surface area to improve heat exchange and permitting omnidirectional convective cooling.

No further comments are deemed necessary at this time.

*Conclusion*

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on (571) 272-4930. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



LEONARD R. LEO  
PRIMARY EXAMINER  
ART UNIT 3753

April 14, 2005